CLAIMS

1. A polynucleotide comprising a sequence selected from the nucleotide sequences of (i) to (iv), wherein the nucleotide sequences encode a 65B13 polypeptide expressed specifically in dopaminergic neuron precursor cells immediately after cell cycle exit, or an antigenic fragment thereof,

(i) a nucleotide sequence comprising nucleotides 177 to 2280 of SEQ ID NO: 1 or nucleotides 127 to 2079 of SEQ ID NO: 2, or a sequence complementary to either of said nucleotide sequences;

(ii) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO: 3 or 4, or a sequence complementary to said nucleotide sequence;

(iii) a nucleotide sequence encoding an amino acid sequence in which a signal sequence portion is deleted in the amino acid sequence of SEQ ID NO: 3 or 4, or a sequence complementary to said nucleotide sequence;

(iv) a nucleotide sequence encoding an amino acid sequence with a deletion, insertion, substitution, or addition of one or more amino acids in the amino acid sequence of SEQ ID NO: 3 or 4, or a sequence complementary to said nucleotide sequence; and,

(v) a nucleotide sequence that hybridizes under stringent conditions with the nucleotide sequence of (i).

2. A vector that comprises the polynucleotide of claim 1.

3. A host cell that comprises the polynucleotide of claim 1 or the vector of claim 2.

4. A polypeptide encoded by the polynucleotide of claim 1.

5. A fragment of the polypeptide of claim 4, comprising at least eight amino acid residues.

6. An antibody against the polypeptide of claim 4 or the polypeptide fragment of claim 5.

7. A nucleotide chain that encodes the polypeptide fragment of claim 5.

8. A method of selecting a dopaminergic neuron, wherein the method comprises the step of contacting the antibody of claim 6 with a cell sample thought to comprise a dopaminergic neuron precursor cell.

9. A method of selecting a dopaminergic neuron, wherein the method comprises the step of contacting a peptide comprising at least an extracellular portion of the polypeptide of claim 4 with a cell sample thought to comprise a dopaminergic neuron precursor cell.

10. A dopaminergic neuron precursor cell immediately after cell cycle exit, wherein the cell is selected using the method of claim 8 or 9.

11. A method of isolating a gene specific to a dopaminergic neuron precursor cell, and a stage-specific gene during maturation of a precursor cell into a dopaminergic neuron, wherein the method comprises the step of detecting and isolating a gene specifically expressed in the precursor cell of claim 10, or a cell differentiated, induced, or proliferated from said precursor cell.

12. A method of screening using maturation as an index, wherein the method comprises the steps of contacting a test substance with the precursor cell of claim 10, and detecting the differentiation or proliferation of said precursor cell as a result of the contact.